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ORIGINAL ARTICLES.

DR. MARTIN HAYWARD POST.

1851-1914.

AN APPRECIATION.

By J. W. Charles, M.D.,
ST. LOUIS, MO.

On Tuesday, September 1st, 1914, Dr. M. Hayward Post, a distinguished ophthalmologist of St. Louis, died suddenly at Castle Park, Michigan, of angina pectoris. An attack of pneumonia in the early spring had been followed by a very slow recovery and his already weakened heart at last gave way before the strain.

While Dr. Post was cognizant of his trouble for years, he silently fought his battle against increasing weakness, a struggle which inspired the keenest sympathy among his intimate friends who had known his magnificent physical strength. The casual acquaintance, noting his splendid address, his alertness of mind and his constantly cheerful mien little guessed that he knew that his days were numbered and that his main thought was to accomplish all duty possible before he answered the call. Duty to him meant more than the ministering to the physical needs of his patients. A believer in the final moral trustworthiness of the universe, he was steadfast in the conviction that he was personally responsible to the Supreme Being, not only in his medical work, but in his human relations and especially in his duty to the State and his Church.

He was a rigid disciplinarian regarding his own responsibilities, but a lenient critic of discrepancies in others. He was a patriot of the highest type, always ready to respond to the calls

of civic duty, especially those connected with ophthalmology. It was largely due to his efforts that the Missouri Ophthalmia Neonatorum bill was passed by the legislature. He was a member of the Missouri Association for the Blind, was interested in every movement for the prevention of blindness, and, on account of his executive ability, he was appointed by the governors of both political parties for over twenty years the consultant for, and a member of the Board of Managers of, the Missouri School for the Blind.

Being "all things to all men" in its greatest sense, his knowledge of men made him exceptionally useful in influencing laymen of affairs to take part in medical philanthropy and legislation. He did not hesitate to invite certain friends to meet the financial needs of some poor patient who needed an operation and whose family needed support; and he made them gladly feel that it was their privilege to contribute.

To the younger men he was a father in counsel, a brother in sympathy. He inspired such affection that it is difficult to formulate in words wherein lay the peculiar influence for good that his whole life exerted. His assistants revered his moral strength and loved his gentle irony for the inexcusable blunder—his keen sense of humor always tempering the most deserved rebuke—and his manifest pain if he felt that he had wounded the feelings of even the most unreasonable patient. One assistant speaks of his "friendliness, his cordiality, his sincerity and his eminent practicality"; another of his "patience, ability to keep his temper when worn out, his great personality"; another of his "practical common-sense in every department of science and human relations, and his attitude toward the higher questions of life"; while still another immediately spoke of his "originality in operative emergency, his prompt initiative concerning new methods, ('a conservative operator, he was daring when necessary') his great magnetism and his Christian faith, and his tenderness with the suffering." A profound student of philosophy, he was a theist, and believed that instinctive faith was as needful in understanding the spiritual realities, as faith in the axioms of science is necessary for results in the material world. These things are mentioned to show how the men most closely associated with Dr. Post regarded his most essential characteristics; and he himself would wish his friends to know that the faith which had dominated his life had remained a solace to him in his hours of trial.

Dr. Post was born in St. Louis, March 31st, 1851. His father, Dr. Truman Marcellus Post, was the pioneer Congregational minister west of the Mississippi River. He early in life connected himself with the First Congregational Church and was a deacon and a member of its board of trustees at the time of his death.

He obtained his preliminary education in the public schools, in Smith Academy, the preparatory school of Washington University, and finally in the university, where he received his A.B. in 1872, being the honor man of his class. It was characteristic of him to spare no expense of time, energy or money to prepare himself to give the best of which he was capable to his chosen profession; to this end he taught school before studying medicine and became the principal of the Blow School in Carondelet before he resigned for the study of medicine. He then attended the St. Louis Medical College, now the Medical Department of Washington University, graduating in 1877. He became an interne at the St. Louis City Hospital, and worked in general surgery with Dr. John T. Hodgen after opening his own office for general work. He was assistant to Dr. John Green for three years, after which he studied with Donders and Snellen at Utrecht and received instruction in operating from Nettleship, who at that time was giving private courses to a few pupils in addition to his regular work.

For many years Dr. Post was on the active medical and consulting staff of the St. Louis City Hospital, the Female Hospital, St. Luke's Hospital, the Missouri Baptist Sanitarium, the Protestant Hospital, and more recently the Barnard Free Skin and Cancer Hospital, and the St. Louis Eye, Ear, Nose and Throat Infirmary.

He was elected a member of the American Ophthalmological Society in 1887, and felt that he had received the highest honor possible to an American ophthalmologist when he was elected their Vice-President in 1913 and President in 1914.

He was also a member of the American Medical Association, the American College of Surgeons, the American Academy of Medicine, the St. Louis Academy of Science, the St. Louis Medical Society, and the Ophthalmic Section of the St. Louis Medical Society, of which he was chairman several years ago, and the St. Louis Ophthalmological Society.

He was elected an honorary member of the Phi Beta Kappa in 1914.

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(American Journal of Ophthalmology.)

1885. Vol. II, page 315—A Case of Transplantation of Two Skin Flaps without Pedicle.
1887. Vol. IV, page 163—Rupture of the Optic Nerve at the Chiasm.
1890. Vol. VII, page 148—Removal of a Piece of Steel from the Vitreous Body with Recovery of Perfect Vision.
1900. Vol. XVII—Report of a Case of Choroidal Sarcoma in a Syphilitic.
1905. Vol. XXII, No. 3, page 86—An Experience with Staining the Skin with Argyrol.
1907. Vol. XXIV, No. 5, page 129—Detachment of the Retina.
1908. Vol. XXV, No. 5, page 129—A New Knife for Dividing Membrane Obstructing the Pupil after Cataract Operations.
1908. Vol. XXV, No. 12, Page 356—A Successful Operation on a Cataract Complicated by a Dacryocystitis.
1909. Vol. XXVI, No. 2—Report of Needling of a Cataract in a Patient Thirty-five and another Thirty-seven Years of Age.
1910. Vol. XXVII, No. 4, page 97—Report of Several Cases of Neuropathic Keratitis.
1910. Vol. XXVII, No. 9, page 257—Prevention of Blindness from from Ophthalmia Neonatorum.

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1911. Vol. XII, Part III, page 759—A Case of Gonorrhœal Conjunctivitis with Arthritis Preceding Conjunctival Discharge by Four Days.

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1911. Vol. XXVIII, No. 12, page 353—Prevention of Ophthalmia Neonatorum.
1912. Vol. XXIX, No. 2, page 40—(Post and Alt)—Bony Tumor of Orbit; Microscopic Examination.
1913. Vol. XXX, No. 6, Page 161—Optic Neuritis Dependent upon Inflammation in the Ethmoid Cells.

REPORT OF A CASE OF TUBERCULOSIS OF THE SCLERA OF PROBABLE PRIMARY ORIGIN.

G. H. Bell (*Med. Record.*, September 12, 1914) reports a case of probable primary tuberculosis of the sclera. Reference is made to the rarity of the condition and to the difficulty in always determining whether a case is in reality primary in origin. It is a commonly unrecognized form of tuberculosis. Some authorities claim that deep scleritis is always secondary. Bell states that, notwithstanding all our advanced methods of examination and points in differential diagnosis, we cannot state as an absolute fact that any case of tuberculosis of the sclera is primary, although he is satisfied that in his case the evidence is in favor of its being so. Bell's patient received in all fifty injections of tuberculin. He is not partial to the method of increasing the dose of tuberculin, in the treatment of ocular tuberculosis, to the farthest limit of tolerance, but believes in small doses gradually increased and continued over a long period of time.

REMOVAL OF AN ANTERIORLY DISLOCATED LENS WITH EWING'S KERATOME.*

By John Green, Jr., M.D.,
ST. LOUIS, MO.

Removal of a lens dislocated into the anterior chamber is an operation which the surgeon is apt to approach with some misgivings. Invariably the zonule is ruptured in whole or in part, and, hence, once the globe is opened there is no barrier to the tendency of the vitreus to press forward. If the attempt be made to extract the lens in the ordinary fashion, that is, by pressure on the cornea following an upward section, one is likely to lose vitreous even before the lens presents. Following this accident, there is a tendency for the lens to drop back, or, if this does not occur, its delivery can only be effected by means of a hook or loop, thereby inviting a further spilling of vitreus. Beard[1] advocates dispensing with the speculum, fixing the globe by grasping the tendon of the superior rectus (Angelucci fixation), making an upward section, and then extracting with a hook passed behind the lens and "dug" into it. In this manner he succeeded in extracting a large, slightly luxated Morgagnian cataract without loss of vitreous. The grip on the superior rectus served to hold back the upper lid, absolutely prevented upward rolling of the globe and caused strong tendency to closing of the wound. Fixation of the lens, by means of a Bowman's needle passed into or behind it, preliminary to making the upward section, has many supporters.

Callan[2] advocates a Lebrun section, depressing the handle of the knife so that the blade passes through the soft cortex in front of the nucleus, then elevating the handle and completing the section. Loop or spoon extraction.

Beard[3] states that "Beer, in Vienna, at the close of the 16th century, tried plunging the lance knife, with which he made the corneal incision, into the lens, mobilizing the latter, completing the section, then expelling the lens by pressure. Often, however, the cataract came out with the knife."

Dr. A. E. Ewing[4] suggested the use of the broad keratome (which he has used so successfully in cataract work), as an efficient instrument in handling this type of case. In Dr. Ewing's patient, a congenital ectopic lens had become wedged in the outer

*Read at the Ophthalmic Section, St. Louis Medical Society, May 6th, 1914.

part of the anterior chamber, accompanied by increased tension and pain. Steadying the globe with double fixation forceps, a keratome incision was made in the temporal sclerocorneal margin and the blade passed back of the lens. The fixation forceps being exchanged for a Daviel spoon, pressure was made backward on the nasal portion of the cornea as the knife was slowly withdrawn. A hard, black nucleus came out with the receding knife, followed by a moderate gush of aqueus and bloody vitreus. Recovery, with vision 20/120, the same as previous to the glaucomatous attack.

My case is that of J. A., age 62, first seen March 16, 1914. Three and one-half weeks before coming under observation, the left eye and eyebrow was hit by a fragment of wood struck off by a hatchet. The patient was at first under the care of a general practitioner who used cocain and atropin. A greatly swollen, cataractous lens almost completely filled the anterior chamber. A narrow ring of iris was to be seen wedged between the lens periphery and the back of the cornea. At the upper outer part of the chamber, the plane of the iris appeared to be slightly posterior to that of Descemet's membrane. By focal illumination, it was possible to make out the outline of a fair-sized nucleus. Tonometer: R. 18 mm. Hg., L. 25 mm. Hg. R.V. 6/12 with+1.25 c. 6/5. L.V. fingers at 6 inches. In conference with Dr. Ewing, who kindly saw the patient with me, it was decided to pass the keratome into the lens behind the nucleus and by pressure on the cornea below endeavor to slide the lens out on the surface of the receding keratome blade. Operation at the hospital, Dr. Hardy assisting. The double fixation forceps handled by the assistant grasped the conjunctiva on either side of the cornea, the operator holding a Daviel spoon in the left hand and Ewing's keratome in the right. The incision was made at the upper sclerocorneal margin, the point being directed backward so as to pass posterior to the nucleus. The keratome was advanced until the rounded heel coincided with the sclerocorneal junction. As soon as this was accomplished, pressure was made on the lower part of the cornea and the keratome very slowly withdrawn. A good deal of soft cortex immediately presented. When the keratome was about half way out, a small nucleus appeared, followed by more cortex. The iris prolapsed, but almost immediately receded. Pupil nearly round and black. No loss of vitreus. One month after operation, the iris had become adherent throughout its entire extent to the back of the cornea and

the nasal fibres appeared to be atrophic. Anterior capsule remains were attached to the posterior surface of the cornea. The deeper layers of the cornea contained here and there fine spots of infiltration. Right tension 18 mm. Hg. Left tension 8 mm. Hg. Left vision with +10=1/40. Ophthalmoscopically, faint view of the disc through the membraneous opacity. I presume that prolonged contact of cornea and iris through the forward pressure of the lens led to inflammatory adhesion, and that the capsule became attached to Descemet's membrane through a similar process.

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2. Wood's System of Ophth. Operations, p. 1310.
3. Ophth. Surgery, 2nd Ed., p. 567.
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ENUCLEATION IN HÆMOPHILIA.*

By John Green, Jr., M.D.,
St. Louis, Mo.

L. O. L., age 33, came under observation November 25, 1912. At the age of 18, the left eye had been struck by the head of a tenpenny nail. The eye was red for a time, but soon cleared and quieted. However, vision slowly failed to practical blindness. The eye remained perfectly quiet until 5 years ago, when he began to have attacks of redness associated with deep, aching pain. Each attack lasted from one to two days, and was thought to be accompanied by "hardening of the eyeball". He was under the care of several oculists, one of whom evidently suspected the presence of a foreign body, as he proposed enucleation. No X-ray, however, was taken.

Complaint: Recurrent attacks of pain, left, accompanied by photophobia right. Examination: A small, round, reactionless pupil, a very deep, anterior chamber and a tremulous iris of a brownish-red tint suggestive of siderosis. Moderate ciliary congestion, no pain on pressure. Ophthalmoscope: Right normal; left aphakia, very faint view of disc (cloudy vitreus). L.V. 1/25; with +10 sp. V.=5/25.

*Read at the Ophthalmic Section, St. Louis Medical Society, May 6th, 1914.

R. pupil failed to react to light, though reacting well to accommodation. Inquiry into the general medical history elicited the fact that the patient had acquired syphilis 10 years before, and that fact, together with absent knee jerk and slight Rombergism, indicated an early tabetic process. Wassermann four plus.

X-ray examination disclosed the presence of a fairly large foreign body, localized in the vicinity of the nerve head. An attempt was made to dislodge the fragment by means of the giant magnet without incising the eyeball. An X-ray taken immediately after this attempt indicated that the foreign body had not been stirred one iota from its original bed. Enucleation was then proposed and accepted. The operation progressed without incident until the moment of cutting the nerve, when a copious hæmorrhage occurred, which pushed the globe in front of the palpebral aperture. During the few moments required to sever the remaining shreds of tissue adherent to the globe, the loose connective tissue of the lids rapidly filled up with blood so that they became almost boardlike. In the meantime, a fat hernia had protruded itself between the lids and could not be reduced by pressure. Hot bichloride compresses were applied. After fifteen minutes, the hæmorrhage, having practically ceased, I was able fairly to approximate the conjunctiva with 3 interrupted sutures. However, there remained this herniated mass outside the lids. A pad copiously smeared with vaseline was applied to the lids and herniated mass, and a pressure bandage applied. The following morning, I found the dressings saturated with blood, and on removing them blood continued to ooze, drop by drop, from the herniated mass, which was about the size of a small hen's egg. Dressings were reapplied, with pressure. In the afternoon, the bandage was again blood-soaked. I then began to suspect that I was dealing with a bleeder, and got him to admit that he always bled very freely after trivial injuries. For instance, he would bleed 15 to 30 minutes after nicking his face in shaving. He did not know of any bleeders in his immediate ancestry. I then injected 10 cc. of normal serum, and a few hours later a similar quantity. Within 12 hours, oozing ceased and recovery took place without further hæmorrhage. The herniated mass gradually receded, and at the time of his departure to his home in Memphis, on December 18th, he was able to wear a shell eye. At this time, there was a complete ptosis, which I presume was caused by pressure of the densely infiltrated orbital tissue on the branch of the third nerve which innervates the levator.

I was somewhat fearful lest the levator paralysis might be permanent and so asked Dr. E. C. Ellett, of Memphis, to seek an interview with the patient and report his condition. Dr. Ellett kindly consented, and saw Mr. L. on November 3, 1913. Dr. Ellett writes: "Replying to your note of the 30th, I called up Mr. L. and he came by the office this afternoon. I am glad to be able to tell you that he seems to be all right in every way. Power has returned to the lid and the only thing that troubles him now is the discharge from the socket. I suggested to him that if he would try a Snellen eye instead of the eye shell that he is wearing that he might find it would help this trouble."

In view of the fact that enucleation is an operation in which fairly large vessels and a great many capillaries are divided, and in which our resources for controlling hæmorrhage are limited, it would be well to make it a practice to inquire of every patient upon whom we propose to remove an eyeball, whether or not he is a bleeder. If there are any reasons for suspecting the presence of hæmophilia, it would be well to guard against a possible hæmorrhage by the prophylactic injection of normal serum. This procedure is harmless, has been used with success in general surgical work, and would probably avert the disconcerting occurrence here described.

REPORT OF A TRAUMATIC PARALYSIS OF BOTH EXTERNAL RECTI.*

By Frederick E. Woodruff, M.D.,
St. Louis, Mo.

I wish to report this case separately simply because it is one of interest to me, for I had never seen such a case and was at first somewhat at a loss as to the exact location of the injury. I am at somewhat of a loss yet.

About the 25th of March, Richard L., a boy four and one-half years of age, fell through a cellarway a distance of eight feet, striking on his shoulder and showing a slight abrasion at the side of the nose. Those were the only marks of injury that could be found. Ten days after the injury, I was called to see the patient, and could find no evidence of eye disturbance except

*Read at the Section of Ophthalmology, St. Louis Medical Society, May 6th, 1914.

a double convergent squint with a paralysis of both external recti. The convergence was possibly exaggerated, but he certainly had no power over either external rectus. I was told that at the time of the injury and for a week afterwards he had had no increase in temperature, no signs of any paralysis except the ocular paralysis, no hæmorrhage of any kind, no trouble with the ear, no sign of fracture at the base, only a concussion of the brain with this double external paralysis and internal convergence. No treatment had been instituted beyond a slight purging and keeping the child as quiet as possible in bed.

In about three weeks the left eye began to have slight movement beyond the median line and up to about three days ago there was no movement in the right eye beyond the median line. The child is up and about and plays as usual. I have taken his refraction, which is about two diopters of hypermetropia, and have given him one diopter correction, thinking that he might not accept the full measure, and am trying to give him not too much. So much for the report of the case.

The abducens nerve has its nucleus beneath the floor of the fourth ventricle, in the knee made by the fibers of the facial nerve as they pass upward and then outward. It is not probable that any of the axis-cylinder processes of these cells are associated with the fibres of the facial nerve. The fibres of the abducens nerve on leaving the dorsal and inner sides of the nucleus pass ventrally and make their exit at the junction of the pons with the medulla oblongata and near the median line. The nucleus is placed a little more cerebralward than is the point of exit of the nerve, consequently the fibres pass a little spinalward in their exit from the brain stem. The close association of the abducens nucleus with the fibres of the facial nerve explains the occurrence of paralysis in the distribution of these two nerves when a lesion is situated in the lower part of the tegumentum of the pons. The nearness of the two abducent nerves to one another at their point of exit from the pons explains the paralysis of both external recti muscles in basilar meningitis. At the point of exit at the junction of the pons and the medulla, the fibres of the abducent nerve become united into one bundle. From here to the exit from the skull through the sphenoidal fissure, the course of the nerve is long, and consequently, paralysis of the external rectus muscle is not uncommon from intracranial lesions.

Double sixth nerve paralysis is relatively frequent in basal disease, when the latter is situated centrally in the posterior fossa (when both anterior pyramids of the medulla may be pressed upon, with consequent motor symptoms in the limbs). Monolateral sixth nerve paralysis is also not infrequent from pressure as a result of fracture of the base. The sixth nerve is liable to be injured, owing to its intimate connection with the dorsum sellæ and the periosteum in the neighborhood of the apex of the petrous portion of the temporal bone, which latter it is stated is very apt to be cracked in these cases. It is recognized that sixth nerve paralysis may be caused by fracture of the base without coma, paralysis of other cranial nerves, or the usual symptoms of basal fracture being present. In such cases, it may not be possible to say, especially if both sides be implicated, whether the lesion is basal or nuclear; if the lesion appears only partially, it points to nuclear lesion, especially if polyuria is present.

I will also say that there was no polyuria present in this case; nor was there sugar present in the urine, as is sometimes found in lesions of the fourth ventricle.

B. A. Shumway, in a recent paper on traumatic paralysis of the external rectus, gives the following statistics regarding the frequency of abducens paralysis: Van Nes, in 1897, found three cases in eighty-two fractures of the skull; Brun, in 1903, found it but ten times in 470 cases; Greef (1903), four cases out of ninety; Liebrecht saw five in 100 cases. Purtcher, writing in 1888, had collected forty-six cases of intracranial traumatic abducens paralysis, thirty-six of these being probably direct, while eight were secondary results of the traumatism. The paralysis was unilateral in thirty cases, bilateral in thirteen, and three cases undetermined. See Shumway's article for citation of a case of his own and references to a few others.

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THE CHOICE OF A CATARACT OPERATION.

E. E. Maddox (*British Med. Jour.,* August 29, 1914) believes that the method of cataract extraction should be chosen so as to meet the precise needs of the individual in question and was preferable to practicing the same operation on all patients alike. Five considerations should guide a surgeon in his choice of operation, the first being safety, the safest procedure being a two-step operation (preliminary iridectomy). The next safest procedure was a combined extraction. Simple extraction was an excellent operation in respect to vision and appearance, but was less safe than the other procedures. The indications for it were a large cornea, a full anterior chamber, a ripe lens, a "live" iris, a healthy conjunctival sac, a patient not too old and free from a tendency to sneeze, cough, vomit or suffer from acute flatulence. Simple extraction afforded good visual acuity and the full ordinary field of vision, the latter being more valuable than acute definition. Post-operative astigmatism was less with this operation. Intracapsular procedures should be reserved for cases in which the cataract was immature and in which ideal facilities for its performance presented themselves. It could not at present be recommended for general adoption. The Indian operation was still waiting some finishing touch to make it a safe procedure and adaptable to the white races, who develop cataract much later in life than the Indians.

TRANSLATIONS.

A CASE OF CORNEAL ULCER DUE TO THE BACILLUS PYOCYANEUS.*

By Dr. P. Jacobi,
MUENSTER, i. W.

(Translated by Adolf Alt, M.D.)

Among the many affections of the cornea the serpiginous ulcer plays an important role. Its course and ending are particularly serious since in a high percentage of the cases vision is lost or materially interfered with. The immediate cause of the ulceration according to present day opinion on the origin of pus formation must be the immigration of micro-organisms into the parenchyma of the cornea. The bacteriological examination of the pus varies and in a comparatively large percentage is negative. In other cases such bacteria are found as are present in the conjunctival sac, as is natural from the close connection between cornea and conjunctival sac. A large number of bacteriological examinations of the microorganisms causing corneal ulcerations have been published. Concerning the serpiginous ulcer the work of Uhthoff and Axenfeld must be mentioned above all. A list of the incitors of traumatic ulcers may be found in Wagenmann's article on injuries, in Graefe-Saemisch. Doetsch who examined for Wagenmann in Jena as many recent corneal ulcers as possible, found the pneumococcus alone in 35 out of 63 cases, six times it was accompanied by other germs. Thus it was found in 41 or ⅔ of the cases. The next frequent was the diplobacillus; the rarer incitors found by Wagenmann were the pneumobacillus, ozænabacillus, bacillus pyocyaneus, bacillus pyogenes fœtidus, bacillus of the marginal ulcer (Zur Nedden), aspergillus fumigatus. Of these, however, the bacillus pyocyaneus is especially important, since infections due to it are mostly characterized by an exceptionally serious course and show some peculiarities of their own. I am, therefore, probably justified in relating a case of corneal ulcer due to the bacillus pyocyaneus, which we had occasion to observe at the Heidelberg University Eye Clinic (Prof. Dr. Wagenmann, Director).

F. H., aet. 12 years, son of a railroad guard. Two days ago

*Wiener Klin. Rundschau, No. 15, 1914.

while washing patient noticed redness and inflammation of the right eye which quickly increased. The following day he saw a yellow spot on the eye. There was no injury and patient had never been ill. The eyes had always been good. No diseases in the family or neighborhood. Entered the clinic August 18th, 1911.

Status præsens.—R. E. conjunctiva hyperæmic, high grade ciliary injection. Lacrimal sac free. The larger part of the cornea is the seat of a large ulcus covered with thick yellow pus. The corneal tissue itself has been destroyed to a great depth. The ulceration is progressing into the depth of the parenchyma. Only the periphery of the cornea remains intact, except for a slight infiltration. The ulcerated portion is bulging. There is a hypopyon 2 mms. high; iris greenish; pupil invisible. V.=light perception; projection good.

L. E. externally and ophthalmoscopically normal. V.=5/5.

In a smear from the ulcer numerous grampositive bacilli (diphtheria or xerosis bacilli?). These lie especially within the corneal tissue. No other micro-organisms. Injections of anti-diphtheritic serum and lavages every 2 hours. Hot compresses for 2 hours, twice a day. Twice daily pilocarpin 20 per cent.; rest in bed.

August 23rd.—Ulcus no larger. Cornea still almost completely covered with pus.

August 29th.—The ulcus has progressed but very little. Between the sharply defined margin of the ulcus and the densely infiltrated centre, upwards, there is a small transparent zone evidently due to increasing destruction of tissue. The culture shows bacillus pyocyaneus.

August 30th.—Ulcer no larger. Pus decreased. The transparent upper zone larger. No hypopyon.

September 2nd.—Very little discharge. Considerable conjunctival and ciliary injection. The transparent zone is slightly ectatic.

September 3rd.—Hardly any discharge. Ulcus cleanses itself. It is plain now that the ectatic posterior lamellæ of the cornea are the ones which permit us to see into the deeper parts. Iris can just be made out and is brownish discolored. Light perception, projection good.

September 6th.—The transparent zone grows downwards.

September 8th.—Less injection. Ulcer clean. No vasculari-

zation of cornea. Counts fingers close to the eye; hand movements at 1.5 m. Pupil small.

September 13th.—Less ectasia. Ulcer perfectly clean. No corneal vascularization. V. the same. Perception upwards uncertain.

September 20th.—Still some ectasia. Less opacity. Smallest lamp flame is recognized.

September 27th.—Dense central opacity. Moderate vascularization. Projection good.

October 5th.—Dense central opacity shading off towards periphery. Hand movements at 2.5 m.

October 16th.—Discharged. Corneal opacity dense in centre only with slight defects in epithelium. Considerable vascularization from the periphery reaching the centre by very small branches. Pilocarpin and mercury bichloride ointment.

On October 24th the central opacity flattened towards the periphery. No ectasia. Pupil normal. Counts fingers at 30 cm.

December 1st.—Optic iridectomy upwards.

December 6th.—Wound healed. Coloboma good. Disc just visible in certain positions of the eye.

December 7th.—Discharged. Fingers at 2 to 2.5 m. Patient was seen again July 15th, 1912. Eye pale. Opacity considerably less. V. improved. After homatropin fingers in 4 m. with +3 D.; with +8 D. No. 7 nearly.

The bacteriological examination had given on August 18th in the smear numerous grampositive bacilli, which in the hanging drop were very motile. On account of the suspicion of diphtheria the injection of antidiptheritic serum was made.

August 29th.—On ascites agar numerous colonies grew in shape of a smeary gray deposit. In the smear these bacilli now were gramnegative. This aroused the suspicion of bacillus pyocyaneus which was confirmed at the hygienic institute by culture and animal experiment by Dr. Laubenheimer. A culture on glycerin agar showed a greenish color. From this, with chloroform, a coloring material could be extracted which in the air crystallized in long blue needles (pyocyanin). At a further examination on September 2nd no bacteria were found in the smear and a material removed from the ulcer on September 5th on culture remained sterile.

From the bacteriological examination there can be no doubt that we had in this case one of infection with the bacillus pyocyaneus.

In ophthalmology the pathogenity of the bacillus pyocyaneus was first observed in a case of dakryocystitis (1885) and since, thanks to the improvements in the methods of bacteriological examinations, the cases have grown more numerous. This bacillus was recognized as the incitor in a number of eye affections. Herff found it twice in blenorrhoic conjunctivitis neonatorum, as, also, Stephenson and Elschnig; Derby, Hanke and Tersch found it in conjunctivitis. These localizations are, however, rare. Most frequently it was found as the incitor of corneal ulcers, which were usually very severe and led to destruction of the cornea and phthisis bulbi. More benign cases have been the exception.

Thus Sattler reported two cases (1891), one injured by a stone, the other by a piece of wood; Haab (1897), one case after perforating injury; Bietti (1899), after stroke with the fist; Gallenga (1900), after an ulcer produced by some vegetable body. Further on Herbert (1901), Schmidt (1901), Stoewerwitten (1901), De Baradinis (1903), McNab (1904), Paul (1905), Szcbalski (1905), Ewing (1906), Bietti (1906), Callan (1906), Happe (1907), Fridenberg (1907), Hanke (1907), L. Meyer (1907), Leber (1910), Loewenstein (1910), Mauersberg (1910) and Verderame (1910).

The most recent case was described by Pagenstecher (1911). A child, 5 years old, had injured the eye with a piece of cane. There was a round superficial loss of substance in the cornea about the size of the upper outer quadrant. A few days later the cornea perforated and the iris prolapsed and was later cut off. Some time later the eye became red and inflamed and for fear of sympathetic ophthalmia it was enucleated. Bacteriological examination: A few bacilli in the smear which were looked upon as the bacillus fluorescens. In a rabbit it caused, however, a rapidly progressing ulcer. Only a week later it was possible to find pyocyanin in the cultures and thus the diagnosis of bacillus pyocyaneus was confirmed.

It is not improbable that other cases in which the bacillus fluorescens was found should be looked upon as pyocyaneus infections. For according to Pagenstecher, the bacillus pyocyaneus can lose its faculty of producing pyocyanin, and in cases of rapidly increasing corneal ulceration we should assume the bacillus pyocyaneus to be the incitor even if at first no pyocyanin is formed and the gramnegative bacilli have from the cultures been considered to be the bacillus fluorescens.

From the observations a trauma plays an important role in the possibility of a pyocyaneus infection. There are, however, cases in which neither a direct trauma nor an injury which indirectly damaged the cornea, can be found. We must therefrom conclude that the bacillus pyocyaneus can have a pathogenic action on a healthy cornea. For the conjunctiva Herbert could prove this directly by experiment; for with a pyocyaneus strain cultured from a low grade keratitis he succeeded in producing small abscesses in healthy rabbit's conjunctiva and also a mild keratitis. The assumption that the bacilli are brought directly into the cornea by the injuring agent, must be abandoned. For the experiments of Uhthoff and Axenfeld on a series of rabbits with ears of grain produced no results. Weidmann, too, who examined the earth from vineyards for micro-organisms, while he found a great many bacilli, could never convince himself of their possessing any pathogenic faculty. An injury, therefore, weakens and decreases the resistance of the corneal tissue and by erosion opens a port of entry which gives occasion to the bacilli, which are often present even in the healthy conjunctival sac, to exert their noxious influence. However, the opinions of the authors differ greatly as to the existence of pathogenic bacteria in the conjunctival sac.

The course of pyocyaneus infections is a rule very malignant, so that in a few days the most destructive corneal lesions may be developed. Usually the infection is characterized by its deep penetration which is explained by the diffusion of a soluble toxin into the tissues surrounding the globe. As accompaning general symptoms, nausea and vomiting have once been observed (McNab). The clinical picture is mostly that of an atypical hypopyon keratitis. At first there is a superficial ulceration, then deeper ulceration and infiltration without the semilunar margin so characteristic for serpiginous ulcer and lamellar exfoliation of the cornea. The main mass of pus is in the centre of the ulcer and the neighborhood is often very œdematous. The clinical picture is rarely similar to that of a serpiginous ulcer; since, however, an atypical hypopyon keratitis is not infrequently at a later stage recognized as a serpiginous ulcer, the differential diagnosis can be made only by bacteriological examination. Our case, which at first appeared to be a very serious affection, is exceptional by the later, little progressive course. We can hardly assume that the serum injection had this effect. It is more justi-

fiable to assume that the pyocyaneus strain was of a weakened virulence, since generally in the milder cases the pyocyaneus showed but little virulence in animal experiments.

The result in our case can well be called extraordinarily satisfying. As far as I can find, only two cases have been reported in which a better visual acuity was reached. As far as the final result has been reported eight ended in panophthalmitis, two in staphyloma corneæ, ten in leucoma adhærens, and of these only three got to counting fingers closely in consequence of an iridectomy, in one case (Schmidt) V=4/50. In one case (Herbert) the infection ran its course as a mild keratitis. Next to Herbert's and Schmidt's cases ours, therefore, showed the most favorable result from a pyocyaneus infection of the cornea.

As regards therapy it is, as in serpiginous ulcer, imperative that the case should come early into competent hands, since everything depends on bringing the process to a standstill in the earliest stages. In our case from the suspicion of diphtheria infection a serum injection seemed at first indicated, and when the diagnosis of pyocyaneus infection could be made the character of the affection in spite of the size of the ulcer was little progressive, even almost benign, so that a conservative treatment with hot compresses, bichloride of mercury and pilocarpin was preferable to more radical measures. In the other cases it was usually necessary to use radical means in order to prevent panophthalmitis and to save at least the shape of the globe. Cautery or Saemisch incision were used, sometimes both of these. Twice only was it possible to stop the process by conservative treatment. Szcbalski warmly recommends cautery and thereby reached a good result in his case. The cauterization must be made deep and extensive and has the advantage, when made with care, of possibly preventing a perforation. Thus no incarceration of iris takes place, no secondary increase in tension occurs and, unless on account of the size of the ulcer the whole cornea had to be cauterized, gives good chances for some future improvement of vision by iridectomy. Should the cornea be perforated the effect would be only that of an ordinary perforation, since the aqueous humor in squirting out would cool off the cautery point immediately. When making a Saemisch incision it is necessary to take care that the lens is not injured and the aqueous humor flows out too rapidly, because the sudden change of tension may produce hæmorrhages into the interior of the eye. It causes almost always an iris incarceration which may

easily lead to secondary glaucoma and renders an iridectomy very difficult; however, these bad results would probably have come on anyhow without an operation. It further effects, also, besides the opening up of the cornea filled with pus, an evacuation of the hypopyon and the toxins. It is to be recommended to keep the wound open for some time to prevent further pus retention.

No attempts at a serum therapy have thus far been made in man. Animals can be artificially immunized. It has been found that the serum of animals which have been by habit made immune against the fluid toxins, acts against the bacilli and the toxins, that is, it is bactericidal and antitoxic; that, however, the serum of animals immunized with living cultures is bactericidal only. These experiments have not gained any practical importance, as little as the antagonistic action of pyocyanase against pyogenic germs. I may state that Morax experimenting with rabbit's bile had a good result in one pneumococcus conjunctivitis and in two cases of hypopyon keratitis, but not in pyocyaneus keratitis.

When the pyocyaneus infection runs its course under the picture of a ring abscess, the ulcer usually extends very soon over the whole cornea so that it is completely destroyed. This is almost regularly followed by panophthalmitis. On account of this fulminant course of the ring abscess there is usually no choice of treatment, except enucleation.

The entrance port for the infection is in the large majority of the cases a loss of substance in the cornea. As stated above, we must, however, assume that the pyocyaneus can, also, attack a healthy cornea. In what manner the infection with bacteria produces a purulent keratitis has been experimentally studied by Leber. When cocci are inoculated into the cornea they at first increase in numbers within the tissue. The tissue then dies in a certain space around the colony of cocci, because just there the toxins furnished by the cocci are most concentrated. Thus the colony of cocci lies in the midst of a necrotic portion. In consequence of the dilatation and increased permeability of the blood-vessels due to the toxic products of the bacteria an active emigration of leucocytes takes place towards the seat of the inflammation, and thus a throwing off of the necrotic part and a demarkating purulent process is produced. The process of pus formation must, therefore, be looked upon as a kind of curative process.

It is astonishing that endogenous infections are so extremely rare in man when compared with these exogenous ones. The bacillus pyocyaneus has been repeatedly found in the blood, and thus the conditions for a bacteræmia are given. Yet, only one case of endogenous pyocyaneus infection has thus far been reported in man. Pergens found in a girl of 25 affected with a metastatic orbital abscess, besides staphylococci also the bacillus pyocyaneus in the pus. By experiment it was found that the bacilli circulating in the blood could wander into the anterior chamber and the vitreous body due to their trophic action on the bloodvessels without any inflammatory or embolic processes in the ocular bloodvessels. Panas is a staunch supporter of the opinion that endogenous infection plays an important role in different eye affections and thinks that *a priori* the irritation of the eye is a predisposing factor for the immigration of micro-organisms. He injected pyocyaneus cultures into rabbits having previously brought a drop of nicotin or acetic acid into their conjunctival sac. In all these cases he could then gain cultures from the aqueous humor. From this he concluded, that the pyocyaneus is apt to enter the eye from the blood. Selenchowsky and Woizechowsky confirmed these results in several cases. Stock, however, based on his experiments, concludes that a previous irritation of the eye is not necessary in order to get metastases in the eyes from pyocyaneus sepsis. He could in rabbits produce a metastatic ophthalmia by injecting the pyocyaneus into a vein of the ear. This metastasis was in the form of a nodular iritis and in rarer cases of a disseminated choroiditis. In spite of highly virulent bacilli these processes healed spontaneously. Korolks made researches concerning the possibility of an infection during operations (iridectomy, cataract extraction) and used among others, also, the bacillus pyocyaneus. In one case out of twelve he produced an endogenous infection. He concludes that the infectious micro-organisms circulating in the blood during an operation enter the eye through the cut bloodvessels and thus infect it and form infectious thrombi and emboli within it.

We have thus seen that the bacillus pyocyaneus as the incitor of corneal ulcers plays no unimportant role in ophthalmology. It is plain, from what has been said, that as with corneal ulcer so also with the pyocyaneus keratitis the prophylactic treatment of all conjunctival cataracts and affections of the lacrimal sac are of the greatest importance. The earlier we treat and cure these

affections the fewer serious affections of the cornea will we see. That in spite of this the pyocyaneus infections have become more numerous may be due to the increased interest and the improved methods of bacteriological examination which permit of a quicker and surer diagnosis than formerly. We may certainly hope that in a not too distant time an ætiotropic treatment of pyocyaneus infections by means of a serum may be possible, especially since such experiments have already been made with the serpiginous ulcer.

BLINDNESS FROM ATOXYL.

In the case reported by R. Steinebach (*Berliner Klin. Wochenschrift,* June 15, 1914) a woman of 36 moderately addicted to alcohol, with an itching skin affection of five years and in the last few months increasing pallor and weakness, was given a course of atoxyl on account of her secondary anæmia. She was given twelve small subcutaneous injections in the course of twenty-six days, and her general condition was materially improved, but she noticed that vision was somewhat impaired for nine or ten months. Then it grew rapidly worse and by the eleventh month she was almost totally blind. The findings in the eyes point unmistakably to injury from atoxyl although only a total of 1.2 gm. had been given. The light and convergence pupil reactions are well preserved, although fifteen months have now elapsed since the first sign of visual trouble was apparent. Diarrhœa developed and has persisted. The smallest total dosage of atoxyl followed by blindness heretofore was 3.4 gm. in the cases on record. A predisposition seems to have been present in all the cases, cachexia from cancer or old age, autointoxication, chronic infections or intoxications, and especially chronic alcoholism—any of which should strictly contraindicate the use of atoxyl.—*Jour. A. M. A.*

MEDICAL SOCIETIES

OPHTHALMIC SECTION, ST. LOUIS MEDICAL SOCIETY.

May 6, 1914.

Removal of Anteriorly Dislocated Lens with Ewing's Keratome. By Dr. John Green, Jr. (See page 261.)

DISCUSSION.

Dr. W. F. Hardy: I remember that I saw for Dr. Charles last summer a girl with congenital dislocated lenses. One lens was dislocated in the anterior chamber, but she did not want any operative procedure done. The pupil was dilated with homatropine. She was put in a reclining position, and the lens dropped back through the pupil. The pupil was then contracted with eserin. That is the last I have heard of her. I suppose she is all right. I have had no operative experience with these cases.

Enucleation in Hæmophilia.—By Dr. John Green, Jr. (See page 263.)

Dr. W. F. Hardy: I had a case in a man almost parallel to this, but he did not give the history of being a bleeder. Before the eye was completely removed, there was a tremendous puffiness of the tissues which impeded the removal of the eye, and by the time the eye was out there was a protrusion as big as a small egg. One could not see any lids, for they were completely hidden, but the bleeding at that time was not so very great. About two days after, the whole side of his face was black and blue from the blood seeping down between the tissues. I applied a bichloride dressing, and the conditions slowly subsided. I was convinced at the time that the cause of the trouble was the prolapse of fat. Evidently, I had cut into orbital fat with the scissors, so that it protruded, and the effect was accentuated by the hæmorrhage that occurred.

I saw in the general literature an instance where a physician was confronted with a hæmorrhage and was unable to stop it, and he conceived the idea of cutting his own finger and letting the blood drop on the bleeding area, in that way controlling the hæmorrhage.

Dr. John Green, Jr.: Some laryngologists, prior to operation on tonsils, are at pains to determine the coagulation time of the blood. They operate in an area in which hæmorrhage is with difficulty controlled and hence try to guard against this complication. Might we not, prior to enucleation, with advantage copy this procedure?

Microscopic Section of an Eye Subjected to Sclerocorneal Trephining.—By Drs. John Green, Jr., and W. F. Hardy. (See this Journal, August, 1914).

DISCUSSION.

Dr. John Green, Jr.: Dr. Woodruff, I would like to hear from you in regard to a case that I saw you do at the Deaconess Hospital, about the middle of November. What was the final outcome?

Dr. Woodruff: The same that you report. I cannot give you the details, because I do not remember them exactly, but this woman had no light perception at all. She was suffering with pain at the time that she came to me, and the only reason for doing the operation at all was the hope of relieving her pain. She was distinctly told that there was no possibility of recovering any lost sight. The trephining was done with a two-millimeter trephine, and everything went along smoothly for four or five days. Suddenly, she developed great pain and tenderness, increasing tension, indicative of an intraocular hæmorrhage. The pain became so intense that I removed the globe, and found an intraocular hæmorrhage. I will say that she had a glaucoma in the other eye. I had not seen her for some time until about a week ago, when she came in. This was done about the last of October, and she did not consult me until a few days ago, when she came to me on account of some other trouble.

Report of a Traumatic Paralysis of Both External Recti.—Dr. Frederick E. Woodruff. (See page 265.)

What has been the treatment?

Dr. Woodruff: Nothing except glasses to correct some of the hypermetropia, so as to avoid as much convergence as possible, thinking that by putting the accommodation at rest there would be less effort at convergence. I expect to increase that correction as soon as I can, but this accident happened only the last of March, so I have hardly had time to do very much.

Dr. Green: Did I understand you to say that the outward motion in one eye was somewhat better than at first?

Dr. Woodruff: Yes, it is decidedly better. He can move the eye beyond the median line; that is, the left eye. Up to a few days ago, he was unable to move the right eye beyond the median line.

Dr. Green: I do not know the literature of that bilateral abducens palsy. Are there any cases in which it has been determined that a hæmorrhage was the cause, a hæmorrhage of the base?

Dr. Woodruff: I could not find any. All that I could find seems to support the idea that there must be a fracture at the base without any other symptoms. I did not see the child for ten days after the injury, but I was told by a competent surgeon who was the attendant that there was no sign of fracture so far as he could determine.

Dr. Green: Was there no X-ray taken?

Dr. Woodruff: No, there was not.

Dr. Hardy: You say he had two diopters of hypermetropia, and you gave him a correction of one diopter. Why did you not give him a full correction?

Dr. Woodruff: He is a little chap, four and a half years old, and very restless, and it was with difficulty that I got the two, and at the first sitting that was the best I could do. I thought I would give him the one and try him again a little later. (Ten days after the above report, the patient was again seen and there is a decided improvement in the muscular action. It is now possible to rotate both eyes at will. The convergence is lessened. When I found that the left externus had begun functionating, atropin was used in that eye in order to force the use of the right eye.)

Dr. M. Hayward Post, Jr.: I had a case not long ago of bilateral paralysis of the abducens, and I cannot remember the cause of it. I can only remember that the treatment was just to correct the hypermetropia.

Dr. Woodruff: Was it traumatic?

Dr. Post: I cannot recall.

Dr. Frederick E. Woodruff, closing: The prognosis in these cases is, as a rule, I believe, very uncertain. Some improve and get well, and others do not. This has had a special interest to me, for about two weeks later, on the 24th of April, a man came in with a paralysis of one external rectus and reported

having had a facial paralysis at the time that the eye trouble began. The facial paralysis has entirely disappeared, leaving a paralysis of the external rectus. He reports that in December, 1913, he had had a cold and took one capsule of quinin—he does not know how many grains, simply one capsule of quinin—and then went out and got wet. He was riding horseback, and about an hour and a half after taking the quinin he noticed that something was wrong with his sight. The next morning he began seeing double, and after about a week the eye squinted considerable. He attributed that to the quinin; but on questioning him I found that he had taken quinin previously without bad effects, and I took it that it was one of those cases of paralysis due to exposure, in which the facial and the sixth nerve are both involved and the facial recovers before the external rectus. I found that he had one and one-fourth diopters of hypermetropia, which I corrected. As to the outcome, of course, I can say nothing, for that was only on the 24th of April.

Dr. Green: In this case of the little boy, Doctor, are there now any symptoms referable to his injury other than the ocular?

Dr. Woodruff: Absolutely none; there never have been, except for the first three or four days.

Dr. Green: And what were they?

Dr. Woodruff: He was semi-conscious, and would rouse and talk at random and be very drowsy, but since I have seen him, ten days after injury, there has been nothing. He seems a normal child, with no signs of where he struck except a little contusion on one shoulder and a slight abrasion of the side of the nose.

ROYAL SOCIETY OF MEDICINE.

Section of Ophthalmology.

The Business and Ordinary Meetings of the Section of Ophthalmology were held on Wednesday, June 10th, 1914, Sir Anderson Critchett, Bart., C.V.O., President of the Section, in the Chair.

The retiring President, Sir Anderson Critchett, was, on the motion of Mr. Higgins, seconded by Mr. Percy Flemming, accorded a very warm vote of thanks for his services in the Chair from the formation of the Section, reference being made by the speakers to the great services rendered to ophthalmology by his

father and himself. Sir Anderson Critchett suitably replied. Thanks were also tendered to Mr. Treacher Collins on his retirement from the Council, and to Mr. Herbert Parsons as Senior Honorary Secretary.

Mr. Harold Whale showed a case of West's intranasal operation for dacryocystitis. Mr. Ernest Clarke asked as to the degree of permanence of the result, and whether any cases had been done a sufficient time to permit of this being known. If the effect was lasting it seemed an admirable method of short circuiting. Mr. Leslie Paton, in discussing the case, reminded members of cases shown at the Ophthalmological Congress last April by Mr. Graham and himself in which a modified West's operation was performed. The results in these cases had lasted about 3 months satisfactorily and were still good. He described Mr. Graham's method of ensuring the exact superposition of the two holes, in the mucous membrane of the nose and that in the mucous membrane of the sac. Mr. W. Lang also discussed the case.

Mr. R. Affleck Greeves showed a case of supernumerary punctum lacrimale and canaliculus. There were four canaliculi, and many of these cases complained of epiphora, but in some the epiphora had nothing to do with the congenital abnormalities found. The condition was discovered accidentally, and therefore cases might be more numerous than they were supposed to be.

Mr. Rayner D. Batten showed a case of double detachment of the retina in a boy with functional albuminuria. The boy was in apparent good health, and there was no œdema or heart trouble. Mr. H. L. Eason discussed the case from the point of view of the possibility of the detached retina going back, and mentioned a case of his own in which that had happened.

Mr. E. Erskine Henderson showed the drawing of a case of a hole in the optic disc, and Mr. Charles Wray exhibited cases of multiple ruptures of choroid between macula and disc with 6/6 vision; also keratoconus treated by Snell's cautery and a case of traumatic dislocation of lens.

Mr. Holmes Spicer showed an interesting case of hyatids in the anterior chamber. The first indication of an abnormality in the eye occurred at the age of three months, and early in the case he thought it was a glioma. Later posterior synechiæ developed and there was a clear cyst floating in the anterior chamber, looking like a soap bubble. It would be necessary to re-

move the eye. He promised a full pathological report at a later meeting.

Mr. Mayou showed a case of optic neuritis with symmetrical defects in the lower fields of vision in diabetes. The patient had had a radical operation done on both sides. Mr. Paton expressed the view that it was neuritis due to accessory sinus disease, and not associated with diabetes.

Mr. Eason described a case in which a piece of steel lodged in the vitreous and had remained there 7 weeks without causing a growth of fibrous tissue over it and without reducing vision below 6/9. There was, however, a slight discoloration of the iris, which did not react to light. He asked for advice on the matter, expressing his view that it was best to leave it alone at present. With this the President agreed.

Mr. A. Hugh Thompson showed a case of detachment of retina by a band due to a steel foreign body. It was extracted by means of a giant magnet. Later detachment occurred, but it got better, and then relapsed, and later the vision was completely lost.

Mr. Charles Wray read a paper entitled "Operative Treatment of Keratoconus." He said that to wait until thinning of the cone took place was as dangerous as the initial softening, and needed justification in view of the efficiency and safety of operative treatment by means of cautery in the early stages. When the diagnosis was certain and the correcting cylinder over 6 D., active treatment was urged, especially if the patient was over 25 years of age and the astigmatism was progressive. Patients with conus should be seen frequently because there might be at any time a dangerous development. He deprecated attempting to do too much at one sitting; in the subevoluted forms excessive cauterization was likely to produce severe irregular astigmatism. It was undesirable to destroy or seriously injure Bowman's membrane, and he found Snell's cautery, at almost a black heat, was very satisfactory. So far, ophthalmic surgeons had confined their efforts in these cases to the surgical treatment of the fully-evoluted cone, which he likened to the policy of deferring the operation for radical cure of hernia until the tumor had incapacitated the patient. Owing to the thinning, very little burning at the summit of the cornea in this condition was apt to result in perforation. When the apex was thin and and the pulsation very pronounced it might be worth while to perforate and thus destroy the centre. An unsatisfactory feature was the formation of a deeply-seated translucent star-shaped

figure at the seat of puncture, consisting of folds of Descemet's membrane. This might later necessitate a sphincterectomy or optical iridectomy. For very advanced cases a special procedure was mostly needed for the summit of the cone. The paper was supplemented by a list of cases and results and drawings.

The paper was diccussed by the President, Mr. W. Lang, and Mr. Leslie Paton, the latter describing a case which he operated upon by Sir Anderson Critchett's method 5 years ago, with an eventual good result. He only proceeded a certain distance in which the cautery, finishing with the Graefe knife, and that method in his hands yielded the best results, though he had tried Mr. Wray's method.

Mr. E. Erskine Henderson read a communication entitled "Rupture of Optic Nerve at Lamina Cribrosa." The case was that of a boy aged 15 who was struck in the face by a pile of bricks thrown from a cart. The blow on the eye did not render him unconscious. There was a large contused wound on the eyebrow and upper eyelid. Only the outer part of the iris was visible; there was no perception of light. A fortnight later the anterior chamber and vitreous had cleared sufficiently to allow of a view of the fundus. The lower half of the disc was represented by a hole. The inferior vessels had been torn across and the lens was partially dislocated. There was paralysis of the third nerve and considerable enophthalmos. Only 12 similar cases appeared to have been recorded since 1856.

ACUTE CONTAGIOUS CONJUNCTIVITIS.

S. H. Brown (*Med. Record,* August 8, 1914) gives a preliminary report of a series of cases originating in a public swimming pool. The cases were of a distinctive type and the infection spread rapidly. The number of cases observed was about 500. In most cases the conjunctiva was intensely congested and œdema or chemosis was noted in a large per cent. of the patients. Profuse discharge was present in 270 patients. Pain, itching and burning were among the symptoms. An inability to use the eyes was a prominent complaint in 250 instances. The bacteriological investigations were not a success. The duration of the disease varied from four days to three months. Most of the cases responded promptly to treatment which consisted of iced compresses, a solution of boric acid and sodium biborate, and the instillation twice or three times daily of one drop of a solution of toluidin blue (1:1000).

ABSTRACTS FROM MEDICAL LITERATURE.

By W. F. Hardy, M.D.,
ST. LOUIS, MO.

CHRONIC OCULAR TUBERCULOSIS.

Verhoeff (*Jour. Am. Med. Assn.*, July 4, 1914) classifies ocular tuberculosis into two well-defined types, acute and chronic. To the acute type belong the cases of solitary tubercle, diffuse tuberculosis of the choroid, acute tuberculous iritis, etc. They run a rapid course with loss of the eye and frequently also the death of the patient ensuing. To the chronic type belong the more frequent cases of tuberculous scleritis, keratitis, chronic iritis and cyclitis. Their course is slow, almost never fatal, and healing ultimately occurs, followed frequently by recurrences. Microscopical examinations of entire eyes from cases of chronic ocular tuberculosis have been few, and general autopsy in such cases according to Verhoeff has never been recorded. He reports a case which is especially noteworthy, since not only were both eyes examined but a general autopsy was performed.

Verhoeff's case is stated to be only the third case yet recorded of death due to tuberculosis of the hypophysis cerebri. The ocular and general findings, macro- and microscopical, are given in detail. The cases reported in the literature are reviewed. From a survey of the features of chronic ocular tuberculosis in general, including those of his case, Verhoeff is convinced that there is something special about the type of tuberculosis in addition to the mode of origin of the eye lesions, evidenced by the following facts:

1. Chronic ocular tuberculosis almost never occurs in cases in which there are well-marked clinical signs of systemic tuberculosis and in which therefore metastases would presumably be most apt to occur. On the contrary, it occurs chiefly in cases in which it is difficult or even impossible to find any other indication of tuberculosis, the present in this connection being a striking example.

2. Although chronic ocular tuberculosis is rare compared to the incidence of tuberculosis in general, yet when it occurs it is almost always sooner or later bilateral, thus showing plainly that it does not represent chance metastases.

3. It occurs almost exclusively in adults, and sometimes even in patients of advanced age.

4. It occurs far more frequently in females than in males.

5. The temperature is almost never elevated and is often subnormal.

6. A large dose of tuberculin is usually required to produce a constitutional reaction and rarely a tuberculin reaction cannot be obtained at all.

7. Acid fast tubercle bacilli seldom if ever can be demonstrated in the lesions.

8. Animal inoculations of the lesions usually if not always give negative results.

Accounting for these fact, Verhoeff ventures the following hypothesis: A condition is established in which the tissues of the host and the infecting organisms have become relatively tolerant with respect to each other. The mutual tolerance is, however, not absolute, so that lesions of slight intensity but of long duration are produced, and the growth of the organisms is to a greater or less degree inhibited. According to this hypothesis the history of a typical case of chronic ocular tuberculosis may be reconstructed thus: In early life, most often in childhood, the patient becomes infected with tubercle bacilli, perhaps usually of the bovine type. A sufficient degree of immunity is quickly developed and the lesions heal without having become extensive. Many of the bacilli, however, remain alive in the lesions. In the course of years, the bacilli become more or less active from time to time, owing to the varying resistance of the patient, and as a result the tissues and bacilli become more and more tolerant of each other. The bacilli become relatively and absolutely less virulent and lose their acid fast property. At some time the resistance of the patient becomes depressed and the original lesions take on renewed activity. Bacilli are now at times given off into the blood, but owing to lack of numbers and loss of virulence, metastatic lesions are directly produced only exceptionally. At times, however, bacilli pass from the capillaries of the ciliary body into the aqueous humor, where owing to the lack of immune substances encountered, they proliferate and then sometimes give rise to the various lesions of chronic ocular tuberculosis, of which those of scleritis and keratitis are the most frequent. Many times doubtless, the bacilli pass into the canal of Schlemm and are carried from the eye without producing any lesions. Due to the relative inactivity of the bacilli and

diminished sensitiveness of the tissues to tuberculo-toxins, the ocular lesions do not reach large size and are often associated with little or no leucocytic infiltration. The resistance of the patient becomes re-established and the lesions heal. After an interval the resistance again becomes lowered, the preceding process is repeated, with the addition that some of the older ocular lesions again become active.

THE USE OF OMNOPON-SCOPOLAMINE COMBINED WITH LOCAL ANÆSTHESIA IN OPHTHALMIC SURGERY.

A. Maitland Ramsay, Glasgow (*Lancet,* April 25, 1914) contributed an article on the use of omnopon or pantopon, as it is called on the Continent, combined with scopolamine, as an adjunct to local anæsthesia in ophthalmic surgery. Omnopon or pantopon was introduced by Prof. Sahli, of Bern. It is a preparation of opium made by Hoffmann-Laroche, in which the total alkaloids are in a soluble form and free from inert and irritating matters. It is a light brown powder five times the strength of opium and contains the alkaloids in the same proportion as in the crude drug. It is used as a 2 per cent. aqueous solution to which 25 per cent. of glycerin is added as a preservative. It may be given by the mouth or hypodermatically; for the latter purpose it is put up in 1 cc. sterile ampoules, 2 per cent in strength, and combined with scopolamine. The average dose for an adult is 2/3 grain of omnopon and 1/150 grain of scopolamine. The preparation is used in nervous and restless patients where the use of a general anæsthetic is not desired. In such patients the local anæsthesia may be perfect, but the mind of the patient is not at ease. The use of omnopon produces a sedative effect upon the brain and makes the patient calm and self-possessed, thereby allowing the performance of the operation with ease and satisfaction. It acts best in adults but may be used in juveniles over 13 years of age in half dosage. An hour before operation 1 cc. is injected into the buttock, the patient is kept in bed, quiet and with the room darkened. He is carried to the operating room. He wakens up and can answer questions, but is free from excitement and apprehensiveness. The local anæsthesia is then carried out as usual. Ramsay has used this method in the following operations: cataract, iridectomy in iritis and in acute glaucoma, irido-sclerotomy, chronic glaucoma, plastic operations on the eyelids, extirpation of the

sac and enucleation of the globe. The drug acts least satisfactorily in the extraction of senile cataract because of the drowsiness of the patient and the tendency of the eyeball to roll up. The after-effects are good. The patient falls asleep and sleeps soundly for several hours. No period of excitement precedes sleep, and neither pulse nor respiration is markedly affected. The face is sometimes flushed. No incoherence of speech is present. On the following morning he has no recollection of what he has said and is often surprised when told that the operation has been performed. Vomiting very rarely occurs and no headache or giddiness. For such operations as advancements, tenotomy, extirpation of the sac and enucleation, novocaine-adrenaline is used as the local anæsthetic is injected under the tissues. Ramsay states that the success of these operations undoubtedly depends in great degree upon the perfection of the local anæsthesia, but the addition of omnopon-scopolamine adds greatly to the comfort both of the patient and operator. The former is in great measure oblivious to what is going on, and the latter is not disturbed during the operation by the restlessness and nervous apprehension of the patient.

CORRESPONDENCE.

New York, August 15th, 1914.

Editor of Journal of Ophthalmology.

Dear Doctor:—The following news item may prove of interest to your readers:

"The Travel Study Club of American Physicians, which made a successful Study Tour of Europe last year, has completed the plans for its 1915 Study Tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, The Philippines, China, with optional return via Siberia and Europe, or via Canada. This being the first party of American Physicians ever visiting the Far East and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. The Travel Study Club would like to make its enterprise as representative as possible and asks all those interested to communicate with the Secretary, Dr. Richard Kovacs, 236 East 69th Street, New York."

Thanking you for your kindly interest, I am,

Yours very truly,

RICHARD KOVACS, Sec'y.